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Objectives of the study of Iowa's employment patterns and projections from 1940 to 1970 were: (1) to present and describe the state's industrial, occupational, and occupational-industry employment changes from 1940 to 1960, (2) to project these levels to 1970, and (3) to provide a summary statement of some employment possibilities for Iowa. Data presented were collected from 1940, 1950, and 1960 U.S. Bureau of the Census reports and other available research studies. Some findings were (1) Structural change in Iowa is basically due to rapid technological development in agriculture and the emergence of new industry, (2) Iowa's population has changed from 42.7 percent urban in 1940 to 53 percent urban in 1960, (3) From 1940 to 1960, the number of employed persons increased by 156,221, of which 135,000 were women, and (4) Professional, technical, and kindred workers were the fastest growing occupational groups during the past decade for males. Major predictions were: (1) The number of agricultural workers is expected to be surpassed by the number of workers in manufacturing by 1970, (2) The greatest employment growth in Iowa appears to lie among professional and technical occupations, and (3) Industrial requirements for labor skills, farm and nonfarm, are expected to continue to decline. A bibliography is included. (WB)

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# IOWA EMPLOYMENT PATTERNS AND PROJECTIONS 1940-1970

MONOGRAPH SERIES NO. 1

**Industrial**

**Occupational**

**Occupational-Industry Employment Matrix**

BY MARIO FRANK BOGNANNO

CENTER FOR LABOR AND MANAGEMENT

COLLEGE OF BUSINESS ADMINISTRATION

THE UNIVERSITY OF IOWA

IOWA CITY, IOWA

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# IOWA EMPLOYMENT PATTERNS AND PROJECTIONS, 1940-1970

- Industrial
- Occupational
- Occupational-Industry Employment Matrix

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The author, of course, assumes responsibility for any errors of commission or omission.

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# CHAPTER I

## INTRODUCTION

The structural change in the industrial base of the economy of Iowa involves social and economic changes for a large number of people within the state. Iowans who have devoted a considerable portion of their lives to an occupation are finding it difficult to obtain employment in that occupation. The shift to different occupations is at times burdensome, for it may involve locational changes as well as changes in the worker's skill composition. New entrants are apt to find limited opportunity to utilize the skills developed in high school and vocational training schools. The youths who are still planning their job careers may be perplexed as to reconciling interest with job opportunities, with the latter filled with uncertainty as to identification. Indeed, the changing economic environment, in all its complexities, confronts us with a puzzling set of adjustments and uncertainty as to each individual's role in the economy of the future.

A method for giving early warning of major changes in occupational requirements is essential if workers are to be educated and prepared to meet the new needs of the economy. It is necessary to identify Iowa's rapidly changing employment clusters, such as those mentioned above, if people are to be given occupational guidance and retrained so that they may secure long-term employment. In other words, if trends may be anticipated, then it will be possible to meet the needs of the labor market more effectively.

### Purpose

Any assessment of Iowa's manpower problems prescribes the need for labor market research. The specific objectives of this study are threefold: (1) to present and describe Iowa's industrial, occupational and occupational-industry employment changes from 1940 to 1960; (2) to project Iowa's industrial, occupational and occupational-industry employment levels to 1970; and (3) to provide a summary statement of some employment possibilities for Iowa.

### Background Information

At the fountainhead of economic change in Iowa is rapid technological development in agriculture and the emergence of new industry. These phenomena are responsible for most of the demographic changes in the state. An analysis of population data discloses that Iowa's population concentration was 53 per cent urban in 1960, 47.7

per cent urban in 1950, and only 42.7 per cent urban in 1940. This migration of Iowa's population is accompanied by the addition of new industries which supply the product and service wants of rapidly changing markets, both state and national. Consequently, new occupations evolve which require new and different labor skills. Unfortunately, a large proportion of the surplus labor in Iowa originates in agriculture, an industry with manpower requirements which differ substantially from those demanded in expanding industries.

Historically, the agricultural industry in Iowa has employed a large percentage of the state's labor force. Also, this industry has either provided a market or supplied the raw materials for approximately 50 per cent of Iowa's manufacturing industry.[1] Even with this economic specialization, one cannot stereotype Iowa as being controllingly agricultural, because other industries, primarily manufacturing, are displacing the economic dominance of agriculture. Moreover, current manufacturing expansion in those areas with a high labor content is not related to agriculture.[2]

During the past few decades the Iowa agricultural industry has undergone a technological revolution. This fact is exemplified by the reality that Iowa farms are practically 100 per cent mechanized for all the usual crops and the mechanization of livestock feeding operations is now widespread and growing yearly.[3] At the same time the size of the average farm in Iowa increased, between 1940 and 1959, from 160.1 acres to 193.6 acres, which has made it easier to achieve higher efficiency from new technologies. As Table 1-1 shows, the number of acres of land in farming remained constant over this period; therefore, with larger farms the total number of farms necessarily declined. Table 1-2 indicates that the decline amounted to a loss of 38,611 farms, which represents a 19 per cent reduction from 1940 to 1959. It is this continuous advance in agricultural technology and farm consolidation which is leading to increases in farm output, in the face of declining agricultural employment.

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[1]C. Woody Thompson and Conrad C. Stucky, "Iowa -- 1975," Iowa Business Digest, Vol. 32, No. 8 (Iowa City, Iowa: The University of Iowa, Bureau of Business and Economic Research, August, 1961), p. 1.

[2]Clifford M. Baumback, "Approaches to Industrial Development in Iowa," Iowa Business Digest, Vol. 34, No. 11 (Iowa City, Iowa: The University of Iowa, Bureau of Business and Economic Research, December, 1959), p. 25.

[3]U. S., Congress, Senate, Committee on Labor and Public Welfare, The Labor Market Role of the State Employment Service, 88th Congress, 2nd Session, 1964, p. 372.

The continuous surplus of farm labor can best be explained in terms of supply and demand. In effect, the rapid increase in farm labor productivity (supply) is outstripping the slowly growing demand for farm products. The latter phenomenon is a result of the relative non-responsiveness (inelasticity) of demand for agricultural goods to increase as consumer income increases or for the purchases to increase as farm product prices drop. The net result is a surplus of farm labor as output-per-man increases in agriculture.

TABLE 1-1
ACRES IN FARMING AND AVERAGE SIZE OF FARMS IN IOWA:
1940, 1950, 1960

| | 1940 | 1950 | 1959 |
|---|---|---|---|
| All Land in Farms (1,000 acres) | 34,149 | 34,265 | 33,931 |
| Average Size of Farms (acres) | 160.1 | 168.7 | 193.6 |

Source: U. S. Bureau of the Census, United States Census of Agriculture: 1959, Vol. 1, "Counties," Part 16, Iowa, (U. S. Government Printing Office, Washington, D. C., 1961), p. 3.

TABLE 1-2

NUMBER OF FARMS IN IOWA:
1940-1959

| Year | Number of Farms | Per cent of Change from Prior Year Shown |
|---|---|---|
| 1940 | 213,318 | ---- |
| 1945 | 208,934 | -2.1% |
| 1950 | 203,159 | -2.8% |
| 1954 | 192,933 | -5.0% |
| 1959 | 174,707 | -9.4% |

Source: Committee on Labor and Public Welfare, The Labor Market Role of the State Employment Service, 88th Congress, 2nd Session, 1964, p. 371.

From 1950 to 1959 the number of farm operators at work in Iowa decreased by nearly 30,000. In 1959, an additional 54,000 operators held some form of part-time employment off the farm. Of this number more than 17,000 actually worked 200 or more days off the farm, which is almost equivalent to full-time non-farm employment.[4] On a more general level, there is evidence that between 1950 and 1962, 89 per cent of the total decline in farm workers took place in the farm operator and family member groups, while hired workers accounted for only ten per cent of the decline.[5] This pattern in Iowa's farm employment follows the national trend where it has been determined that higher levels of education are needed for those who remain on the farm. The movement towards fewer but larger farms, coupled with the increasing complexity of farming, calls for farmers with more technical and managerial abilities.[6] The farmers of Iowa are acquiring these skills in order to survive and take advantage of the changing circumstances.

Tables 1-3 and 1-4 exhibit more generalized employment data. These tables show the number of industrially-employed persons in Iowa and the United States, respectively. In the three periods listed, the Iowa and the national economies registered similar changes, although differentials existed as to the rate of change. Table 1-3 shows a 26.2 per cent decline of employed persons in Iowa's agricultural industry between 1950 and 1960. The United States showed an even sharper decline, which was 38.4 per cent. Manufacturing in Iowa, on the other hand, expanded faster than that for the Nation. More than 90,000 persons found employment in Iowa manufacturing between 1940 and 1960. Between 1950 and 1960, the number of persons employed in Iowa manufacturing increased by almost 24 per cent. The increase for the Nation was 19 per cent. (See Tables 1-3 and 1-4)

The demand and supply forces which are leading to the decline in the number of jobs in the farming industry in Iowa are indirectly the same forces which have set into motion Iowa's interstate and intrastate population movements. It has already been noted that the population of Iowa is migrating from rural to urban areas in the state. It should be added, however, that only one-third of Iowa's ninety-nine counties experienced an increase in population between 1940 and

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[4] C. A. Peterson and Norbert K. Norpel, Iowa Employment Trends, 1947-1960, Research Series No. 24 (Iowa City, Iowa: The University of Iowa, Bureau of Labor and Management, April, 1962), p. 11.

[5] The Labor Market Role of the State Employment Service, op. cit. p. 372.

[6] "Trends in Farm Employment and Training Needs," United States Department of Labor Manpower Report, No. 3 (Washington, D. C.: Office of Manpower, Automation, and Training, September 27, 1962), p. 1.

1960. The most significant increases taking place in the triangle formed by a line connecting the counties of Polk, Black Hawk and Scott.[7]

TABLE 1-3
EMPLOYED PERSONS IN AGRICULTURE AND MANUFACTURING FOR IOWA: 1940, 1950, 1960

| Industrial Group | Number Employed* 1940 | 1950 | 1960 | Per cent Change 1950-1960 |
|---|---|---|---|---|
| Agriculture | 309,735 | 285,029 | 210,219 | -26.2 |
| Manufacturing | 99,549 | 153,308 | 189,660 | 23.7 |
| Remaining Industries | 452,397 | 564,479 | 619,123 | 9.7 |
| Total | 861,681 | 1,002,816 | 1,019,002 | 1.6 |

*Source: U.S., Bureau of the Census, Census of Population: 1960, "General Social and Economic Characteristics, Iowa," Final Report PC (1) - 17C (U.S. Government Printing Office, Washington, D.C., 1962), p. 188.

TABLE 1-4
EMPLOYED PERSONS IN AGRICULTURE AND MANUFACTURING FOR UNITED STATES: 1940, 1950, 1960

| Industrial Group | Number Employed* 1940 | 1950 | 1960 | Per cent Change 1950-1960 |
|---|---|---|---|---|
| Agriculture | 8,449,463 | 6,908,647 | 4,256,734 | -38.4 |
| Manufacturing | 10,670,087 | 14,685,482 | 17,513,086 | 19.3 |
| Remaining Industries | 25,950,765 | 34,841,144 | 42,869,427 | 23.0 |
| Total | 45,070,315 | 56,435,273 | 64,639,247 | 14.5 |

*Source: U.S., Bureau of the Census, Census of Population: 1960, "General Social and Economic Characteristics, United States Summary," Final Report PC (1) - 1C (U.S. Government Printing Office, Washington, D.C., 1961), p. 223.

[7]U.S. Bureau of the Census, U.S. Census of Population: 1950, Vol. 11, "Characteristics of the Population," Part 15, Iowa (U.S. Government Printing Office, Washington, D.C., 1952), pp. 9-10 and U.S. Bureau of the Census, U.S. Census of Population: 1960, "General Characteristics, Iowa," Final Report PC (1) - 17B (U.S. Government Printing Office, Washington, D.C., 1961), pp. 135-142.

Job changes represent a concomitant part of the urbanization movement in Iowa. In fact, thousands of the "technologically displaced" farm owners and workers have evidently secured employment in manufacturing, an industry which has been closely related to agriculture. This event, plus the expected annual decline in farm employment of approximately 4,500 persons, represents large manpower shifts.[8] It appears that established farm workers will be forced to seek employment in non-farm related industries which require substantially different labor skills, sometimes unfamiliar to the farmer or farm laborer. This shift is magnified in view of the expected annual natural increase in the farm labor force of approximately 8,200 workers, who must compete with the growing non-farm labor force for jobs.[9] The final result of these occurrences will probably be an expanding need to retrain older workers and to train young farm workers for careers in expanding non-farm industries.

In addition to Iowa's internal population movements, there has been an out-of-state migration. The population in Iowa has increased by 219,629 persons between 1940 and 1960. During the same period more than 435,000 persons left Iowa. Of this total out-migration, the males exceeded females by nearly 125,000.[10] The pervasiveness of this emigration is state-wide, with the exception of Black Hawk, Linn, Polk, Pottawattamie, Scott and Warren Counties.[11]

One outgrowth of this migration pattern has been an alteration in the age structure of the population of the state. For instance, there has been a significant increase in the proportion of "dependent" non-labor force members (persons under 15 and over 65 years of age). In 1940 there were 227,767 persons 65 years old and over in Iowa and by 1960 this number had advanced to 317,967. This represented a 39 per cent increase, compared with a total population growth of 8 per cent for this twenty-year period. In other words, 8.9 per cent of the population was 65 years of age and older in 1940, and in 1960, 12.5 per cent of the population fell into this category.[12]

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[8]"Iowa--A State in Economic and Social Transition--A Panel Presentation," Iowa Business Digest, Vol. 30, No. 12 (Iowa City, Iowa: The University of Iowa, Bureau of Business and Economic Research, December, 1958), p. 8.

[9]Ibid.

[10]Iowa, Department of Health, Division of Vital Statistics, Iowa State Department of Health Annual Report: 1962 (Des Moines, Iowa: 1962), p. 116.

[11]Thompson and Stucky, op. cit., p. 2.

[12]David E. Cooper and Craig Lloyd, Occupational Characteristics of the Iowa Labor Force: 1940-1960, Research Series No. 26 (Iowa City, Iowa: The University of Iowa, Bureau of Labor and Management, June, 1963), pp. 20-22.

An even more pronounced change in the distribution of the state's population occurred in the 14 and under age group. Between 1940 and 1960, the number of Iowans in this category increased by [redacted] per cent. In 1940 almost 25 per cent of the population was 14 and under, by 1960 the figure increased to 31.1 per cent.[13]

This increased polarization of the Iowa population implies changes in other activities. For instance, the continuous increase in the number of school-age children in the state involves additional expenditures for liberal and vocational education. Along with the accommodation of increasing numbers, the programs of the vocational education schools may well have to be expanded in order to prepare people to take advantage of the changing occupational opportunities.

As another instance, the increased number of school-age children in Iowa, coupled with their tendency to be concentrated in urban areas, may reflect a propensity to have a higher dropout rate in the future.[14] In order to avoid a paucity of job opportunities for these children, it may well be necessary to initiate programs of counseling and to develop special training facilities.

As a final illustration, the increasing number of older persons in Iowa creates a special need for expanding services for senior citizens.

The above information dealing with the state's population distribution suggests that young adults are apt to emigrate at a more rapid rate than "older" persons.[15] This suggestion is buttressed by the reality that every age group between 15-19 and 50-54 years of age recorded a relative decline as a percentage of the state's total population. Over the twenty years, 1940 to 1960, an absolute decline in the number of males in Iowa's population between 15-19 through 50-54 years of age took place. The same happened to females in age groups 15-19 through 30-34.[16] This, of course, means that Iowa's net loss of manpower via out-of-state migration is concentrated among the economically productive age groups. Some may jump to the conclusion that the most talented, energetic, and educated youths of Iowa are leaving the state. That may well be. To verify this conclusion, however, would require more information than is now available.

[13] Ibid.

[14] Edward B. Jakubauskas, "Labor Force and Occupational Trends in Iowa," Iowa Business Digest, Vol. 36, No. 3 (Iowa City, Iowa: The University of Iowa, Bureau of Business and Economic Research, March, 1965), p. 14.

[15] Harvey S. Perloff, et al., Regions, Resources, and Economic Growth (Baltimore: The Johns Hopkins Press, 1961), p. 597.

[16] Cooper and Lloyd, op. cit.

The above discussion briefly indicates some of the broader and more complex shifts occurring in Iowa. Many of these shifts take root in the rapidly changing economic structure of the state: changes basic to agriculture and growth in manufacturing. While it is true these two industries have undergone vast employment changes, so have many of the other industries in the state. For example, accompanying the growth of Iowa's urban areas is the expansion of employment in many public and private service industries; while still other categories, such as mining, are on the decline. Together with these industrial changes are new occupational demands for labor and a reshaping of Iowa's employment needs. Occupations of relatively little employment significance only a few years ago are growing rapidly today, while old and established occupations are sharply declining in their relative importance as potential sources for future employment.

These changes in the economy of Iowa are creating a myriad of manpower problems, or perhaps, opportunities. Two of the most pressing problems or opportunities involve the expanding of educational needs for the state's growing number of school-age children and the training and retraining of workers displaced by technological progress. These individuals ought to be equipped with the skills and "know-how" demanded in the labor market. But before educational curricula can be structured for allowing the young to realize their coming opportunities, it is essential to know in more specific terms the direction in which labor market demand is moving. This is the purpose of this study.

## Research Design

Before developing some of these changes in more detail, a few comments concerning the design of this study are in order. The employment data underlying the analysis of employment changes between 1940 and 1960, were collected from the 1940, 1950 and 1960 census.[17]

[17] U. S. Bureau of the Census, Census of Population: 1960, "Detailed Characteristics, Iowa," Final Report PC (1)-17D (U. S. Government Printing Office, Washington, D. C., 1962), pp. 431-436; U. S. Bureau of the Census, U. S. Census of Population: 1950, Vol. II, "Characteristics of the Population," Part 15, Iowa (U. S. Government Printing Office, Washington, D. C., 1952), pp. 225-226; and U. S. Bureau of the Census, Sixteenth Census of the United States: 1940, Vol. III, "The Labor Force," Part 3: Iowa-Montana (U. S. Government Printing Office, Washington, D. C., 1943), pp. 53-54.

These data are available for the number of "employed persons" in major occupations, cross-classified by industry for both sexes.[18] This information is arranged into fourteen industries and seven occupational categories, plus a matrix cross-classifying the two.[19]

A tabular presentation underlying the employment trend analysis for Iowa between 1940 and 1960 will be presented in three parts. The first shows the actual number of employed persons in Iowa in 1940 by major industrial groups and sex. These tables, in addition, presents the respective percentage changes in employment between 1940 and 1950 and 1950 and 1960 for each industrial item, hence showing the relative growth of employment per industry over the twenty years. The method of analyzing employment changes is based on these percentage changes. The remaining two parts are structured and analyzed in a similar manner. However, the second develops employment changes by occupation; the third shows the employment changes in major occupations by industry.

Underlying the industrial, occupational and occupational-industry employment projections to 1970 is the systematic compilation of employment changes from 1950 to 1960. These data and their respective projections will be presented in a similar manner to the trend analysis mentioned above.

The employment projections are based on the extension of 1950 to 1960 changes. It is widely recognized that the availability of historical employment data is inadequate. Accordingly, the projections set forth in this research are intended only to suggest what the employment levels might well be in 1970. In other words, these projections are not predictions of employment in 1970, but indicate the

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[18]"Employed persons" comprise all civilians 14 years and older who were either (a) "at work"--those who did any work for pay or profit, or worked without pay for fifteen hours or more on a family farm or a family business, or (b) "were with a job but not at work" --those who did not work and were not looking for work, but had a job or business from which they were temporarily absent because of bad weather, industrial dispute, illness or other personal reasons.

[19]Fourteen industries and seven occupations are used in this study. The industries are: (1) agriculture, forestry and fisheries; (2) mining; (3) construction; (4) manufacturing; (5) transportation; (6) communication; (7) utilities; (8) wholesale and retail trade; (9) finance, insurance and real estate; (10) business and repair services; (11) personal services; (12) amusement, recreation and related services; (13) professional and related services; (14) government. The occupations are: (1) professional, technical and kindred workers; (2) managers, officials and proprietors, including farm; (3) clerical, sales and kindred workers; (4) craftsmen, foremen and kindred workers; (5) service workers; (6) operatives; and (7) laborers.

For information on the composition of the major groups listed refer to the publication U. S. Bureau of the Census, 1960 Census of Population, Classified Index of Occupations and Industries, U. S. Government Printing Office, Washington, D. C.

employment levels for 1970 if relative employment changes between 1960 and 1970 are similar to those of the previous decade.

In order to project future employment levels that reflect the favorable economic conditions which currently prevail in Iowa and the Nation, and which are expected to continue into the 1970's, it is necessary to adjust the relative employment changes which occurred from 1950 to 1960. The 1970 projections for each employment category are derived by the addition of the absolute annual average rate of change in each sector to the percentage change in employment which occurred over the decade from 1950 to 1960. This sum is then multiplied by the number employed per sector in 1960 and added to the same. The mathematical expression follows:[20]

$$\left[\frac{N_{1960} - N_{1950}}{N_{1950}} + \left| \frac{1}{10} \left( \frac{N_{1960} - N_{1950}}{N_{1950}} \right) \right| \right] N_{1960} + N_{1960} = N_{1970}$$

This adjustment technique provides a uniform method for regulating each employment group in accordance with the relative magnitude of its change. The net effect of this method is to adjust expanding employment trends upward and to temper declining ones. This adjustment is a matter of judgment which probably will not meet the approval of everyone. Nevertheless, the assumptions underlying it are thought to be preferable to other sets of assumptions.

[20] "N" symbolizes the absolute level of employment.

## CHAPTER II

## EMPLOYMENT TRENDS AND PROJECTIONS FOR IOWA

An understanding of the employment posture in Iowa partially depends upon knowing what economic changes have occurred in the state that require shifts in the occupational and industrial attachments of the Iowa work force. The background section in Chapter I briefly introduced some of these structural changes. In this chapter an endeavor will be made to present the direction of employment changes in recent years and to posit employment projections to 1970.

The number of employed persons in Iowa grew by 156, 221 from 1940 to 1960. This was an increase of more than 18 per cent. The hidden significance of this growth is that it has been, almost entirely, the result of the influx of working women. More than 135, 000 women joined the state's work force, compared with an increase of only 18, 253 men during this period. In fact, the number of men working in Iowa actually declined during the last ten years of this period. Table 2-1, furthermore, indicates that by 1970 the number of males working in Iowa is likely to fall by another 5, 000 if the same type of change prevails through the sixties. While this change may be generally known, many other changes of equal importance are not as widely perceived.

### 1. Employment Trends

Industrial Trends. A decline in the employment of workers engaged in occupations on farms is substantiated by data in Tables 2-2 and 2-3. The extractive industries, particularly agriculture and mining, have

TABLE 2-1
NUMBER OF PERSONS EMPLOYED IN IOWA
1940, 1950, 1960 and 1970 Projected

| | 1940 | 1950 | 1960 | 1940-1950 Per cent Change | 1950-1960 Per cent Change | 1970 Projection |
|---|---|---|---|---|---|---|
| Total Employed | 862,781 | 1,002,816 | 1,019,002 | 16.23 | 1.61 | 1,116,396 |
| Males | 692,431 | 757,942 | 710,684 | 9.46 | -6.24 | 705,586 |
| Females | 107,350 | 244,874 | 308,318 | 43.75 | 25.91 | 410,810 |

declined in importance as employers in the Iowa economy since 1940 for males and since 1950 for females. It is indeed fortunate that the decline in agriculture is paralleled by an upward employment trend in manufacturing, which is rapidly replacing the extractive industries as the largest single employer of labor in the state. This growth is particularly important for men, because manufacturing offers males one of the few major employment vistas in the state. From 1950 to 1960, the numbers of males employed in manufacturing increased by more than 28, 000, four times as fast as total employment.

Relative to the percentage growth in total employment, more rapid gains occurred between 1950 and 1960 in communications, utilities, finance, government and professional services for males. Marked declines occurred in the remaining industries. These losses are restricted to men for the employment of women advanced in all sectors of the economy except for the extractive industries.

TABLE 2-2

NUMBER OF PERSONS EMPLOYED IN EACH MAJOR INDUSTRY GROUP FOR MALES, IOWA: 1940, 1950, 1960

| Major Industry Group | 1940 | Net Change 1940–1950 Number | 1940–1950 Per cent | 1950–1960 Number | 1950–1960 Per cent |
|---|---|---|---|---|---|
| Agriculture, forestry and fisheries | 303, 619 | -37, 721 | -12. 42 | -72, 103 | -27. 12 |
| Mining | 6, 313 | - 3, 173 | -50. 26 | - 876 | -27. 90 |
| Construction | 35, 592 | 17, 802 | 50. 02 | - 2, 525 | - 4. 73 |
| Manufacturing | 82, 197 | 38, 933 | 47. 37 | 28, 226 | 23. 30 |
| Transportation | 40, 417 | 5, 303 | 13. 12 | - 8, 819 | -19. 29 |
| Communication | 3, 009 | 293 | 9. 45 | 1, 815 | 53. 51 |
| Utilities | 7, 006 | 2, 774 | 39. 95 | 1, 032 | 10. 55 |
| Wholesale, and retail trade | 107, 078 | 19, 346 | 18. 07 | - 3, 414 | - 2. 70 |
| Finance, insurance, and real estate | 14, 811 | 1, 292 | 8. 72 | 3, 302 | 20. 15 |
| Business and repair services | 16, 418 | 7, 271 | 44. 29 | - 6, 876 | -29. 03 |
| Personal services | 13, 733 | 506 | 3. 68 | - 2, 224 | -15. 62 |
| Amusement, recreation, and related services | 4, 943 | 933 | 18. 88 | - 1, 930 | -32. 85 |
| Professional and related services | 27, 772 | 6, 694 | 24. 10 | 13, 606 | 39. 43 |
| Government | 18, 868 | 3, 715 | 19. 69 | 631 | 2. 79 |

With the exception of the industries mentioned above (particularly manufacturing and professional services), employment declines for men permeated all industrial sectors of the economy during the fifties. It is interesting to observe that in several broad industrial divisions of the economy, downward employment trends reported for the fifties are wholly or largely offset by the favorable employment changes that occurred during the forties. This phenomenon gives evidence of an economy which greatly changed between 1940 and 1960. In 1940, Iowa was recovering from The Great Depression, while during the forties economic activity changed markedly because of World War II and its concomitant development of new products and services, changes in consumption habits and technology. All of these forces are reflected in varying employment changes which came to the fore during the next decade.

TABLE 2-3

NUMBER OF PERSONS EMPLOYED IN EACH MAJOR INDUSTRY GROUP FOR WOMEN, IOWA: 1940, 1950, 1960

| Major Industry Group | 1940 | Net Change 1940-1950 Number | 1940-1950 Per cent | 1950-1960 Number | 1950-1960 Per cent |
|---|---|---|---|---|---|
| Agriculture, forestry and fisheries | 5,403 | 14,097 | 260.91 | - 2,792 | -14.32 |
| Mining | 30 | 138 | 460.00 | - 50 | -29.76 |
| Construction | 616 | 874 | 141.88 | 620 | 41.61 |
| Manufacturing | 16,530 | 14,283 | 88.41 | 9,491 | 30.80 |
| Transportation | 978 | 1,257 | 128.53 | 313 | 14.00 |
| Communications | 4,335 | 2,600 | 59.98 | 288 | 4.15 |
| Utilities | 827 | 537 | 64.93 | 320 | 23.46 |
| Wholesale, and retail trade | 37,835 | 28,128 | 74.34 | 9,614 | 14.57 |
| Finance, insurance, and real estate | 7,008 | 4,537 | 64.74 | 5,609 | 48.58 |
| Business and repair services | 1,276 | 1,499 | 117.48 | 1,135 | 40.90 |
| Personal Services | 44,083 | -13,947 | - 31.64 | 6,738 | 22.36 |
| Amusement, recreation, and related services | 1,120 | 1,283 | 114.55 | 211 | 8.78 |
| Professional and related services | 40,731 | 12,416 | 30.48 | 28,433 | 53.50 |
| Government | 4,849 | 2,805 | 57.85 | 1,942 | 25.37 |

TABLE 2-4

NUMBER OF PERSONS EMPLOYED IN EACH MAJOR OCCUPATIONAL GROUP FOR MALES, IOWA: 1940, 1950, 1960

| Major Occupational Groups | 1940 | Net Change 1940-1950 Number | 1940-1950 Per cent | 1950-1960 Number | 1950-1960 Per cent |
|---|---|---|---|---|---|
| Professional, technical, and kindred workers | 29,915 | 10,402 | 34.77 | 14,118 | 35.02 |
| Managers, officials, and proprietors (incl. farm) | 272,007 | - 1,362 | - .50 | -48,361 | -17.87 |
| Clerical, sales, and kindred workers | 69,005 | 11,058 | 16.02 | 2,741 | 3.42 |
| Craftsmen, foremen, and kindred workers | 74,668 | 35,015 | 46.89 | 741 | .68 |
| Operatives, and kindred workers | 77,738 | 25,707 | 33.07 | 11,738 | 11.35 |
| Service workers | 26,067 | 4,622 | 17.73 | 1,185 | 3.86 |
| Laborers (incl. farm) | 137,887 | -24,455 | -17.74 | -38,199 | -33.68 |

Occupational Trends. As the number of persons employed in the various industries changed, a simultaneous employment change occurred among the various occupations. Employment gains from 1940 to 1960 for workers of both sexes combined were most rapid in clerical, professional and operative occupations, and declines most extensive in laboring occupations and among farm owners and operators. From 1950 to 1960 the service occupation, in which employment increased nearly 31 per cent, registered the greatest gain relative to all other sectors.

The most rapid gains in the employment of women took place in the clerical and selling occupations as indicated by the large relative and absolute increases that have been reported for both decades (see Table 2-5). Males, likewise, made gains in this category, but men employed in clerical and sales capacities report the most rapid growth from 1940 to 1950. In the next decade, the number of such male employees increased by only 3.5 per cent (see Table 2-4). The most important occupational group for men was the professional category.

TABLE 2-5

## NUMBER OF PERSONS EMPLOYED IN EACH MAJOR OCCUPATIONAL GROUP FOR FEMALES, IOWA: 1940, 1950, 1960

| Major Occupational Groups | 1940 | Net Change 1940-1950 Number | 1940-1950 Per cent | 1950-1960 Number | 1950-1960 Per cent |
|---|---|---|---|---|---|
| Professional, technical, and kindred workers | 33,103 | 3,239 | 9.78 | 8,531 | 23.46 |
| Managers, officials, and proprietors (incl. farm) | 10,438 | 2,127 | 20.38 | 2,327 | 18.52 |
| Clerical, sales, and kindred workers | 51,053 | 36,543 | 71.58 | 26,598 | 30.36 |
| Craftsmen, foremen, and kindred workers | 1,223 | 1,998 | 163.37 | 1 | .03 |
| Operatives, and kindred workers | 14,420 | 11,877 | 82.36 | 4,339 | 16.50 |
| Service workers | 53,302 | - 1,132 | - 2.12 | 24,557 | 47.07 |
| Laborers (incl. farm) | 3,679 | 15,083 | 409.98 | - 6,621 | -35.29 |

From 1940 to 1950 this sector increased by more than 34 per cent, and by more than 35 per cent from 1950 to 1960. Over the whole period more than 24,000 males took jobs as professional and technical workers compared with 11,700 females.

In the "blue collar" occupations women employed as craftsmen and operatives gained moderately over the entire period, but primarily because of large increases during World War II. Men, on the other hand, made substantial gains in both the occupations over the same period, with expansion persisting into the fifties because of a continued growth in male operative employment. The percentage increase in craftsmen from 1950 to 1960 was less than one.

Gains in the employment of men as service workers offset declines in the employment of women to yield a small over-all net gain in this category by 1950. But, women in the service occupations increased by more than 47 per cent during the fifties, while men reported a net increase of only 3.9 per cent.

## SUMMARY TABLE 2-6

## RANKING OF OCCUPATIONAL-INDUSTRY GROUPS BY ABSOLUTE CHANGE IN EMPLOYMENT FOR MALES, IOWA: 1940-1960

| Occupational-Industry Groups | | Net Change 1940-1960 | |
|---|---|---|---|
| **Upward Employment Trends** | | **Number** | **Per cent** |
| Operatives | - Manufacturing | 34,484 | 133.7 |
| Craftsmen | - Manufacturing | 12,882 | 63.0 |
| Professional | - Professional services | 10,834 | 54.2 |
| Craftsmen | - Wholesale and retail trade | 9,762 | 169.8 |
| Professional | - Manufacturing | 8,105 | 356.6 |
| Clerical | - Manufacturing | 6,109 | 49.9 |
| Opecatives | - Wholesale and retail trade | 5,471 | 33.0 |
| Service | - Professional Services | 4,732 | 105.5 |
| Managers | - Manufacturing | 4,104 | 68.6 |
| Labor | - Wholesale and retail trade | 3,132 | 56.7 |
| Managers | - Construction | 2,883 | 164.0 |
| Craftsmen | - Utilities | 2,680 | 147.8 |
| Craftsmen | - Communication | 2,380 | 1196.0 |
| Clerical | - Finance, insurance and real estate | 2,370 | 27.1 |
| Craftsmen | - Professional services | 1,881 | 291.2 |
| **Downward Employment Trends** | | | |
| Craftsmen | - Transportation | - 2,751 | - 30.8 |
| Operatives | - Mining | - 4,197 | - 77.2 |
| Managers | - Wholesale and retail trade | - 8,251 | - 20.1 |
| Managers | - Agriculture | -50,781 | - 24.8 |
| Labor | - Agriculture | -60,295 | - 62.0 |

Occupational-Industry Trends. Appendix A exhibits employment changes for all of the occupational-industry combinations from 1940 to 1950 and from 1950 to 1960. However, with such an abundance of data, it is likely that any analysis may be encumbered with extraneous detail. Therefore, Summary Tables 2-6 and 2-7 represent a compendium of the most significant employment changes.

It should be noted here that while the data on Summary Tables 2-6 and 2-7 report employment trends for the entire 1940 to 1960 period, each of these employment combinations expanded during the decade of the fifties. Those combinations which made huge advances during the forties, but declined in the next decade, even though re-

## SUMMARY TABLE 2-7

## RANKING OF OCCUPATIONAL-INDUSTRY GROUPS BY ABSOLUTE CHANGE IN EMPLOYMENT FOR FEMALES, IOWA: 1940-1960

| Occupational-Industry Groups | | Net Change 1940-1960 | |
|---|---|---|---|
| **Upward Employment Trends** | | **Number** | **Per cent** |
| Clerical | - Wholesale and retail trade | 21,787 | 103.8 |
| Service | - Professional services | 18,564 | 532.0 |
| Service | - Wholesale and retail trade | 12,018 | 125.0 |
| Operatives | - Manufacturing | 11,714 | 139.0 |
| Clerical | - Professional services | 10,715 | 208.4 |
| Clerical | - Manufacturing | 9,558 | 179.0 |
| Professional | - Professional services | 9,501 | 30.4 |
| Clerical | - Finance, insurance, and real estate | 9,206 | 154.9 |
| Clerical | - Government | 4,128 | 128.4 |
| Clerical | - Communications | 2,585 | 62.1 |
| Clerical | - Business and repair services | 1,931 | 189.3 |
| Managers | - Agriculture | 1,684 | 55.4 |
| Clerical | - Construction | 1,182 | 302.3 |
| Clerical | - Transportation | 991 | 133.2 |
| Craftsmen | - Manufacturing | 973 | 182.2 |
| **Downward Employment Trends** | | | |
| Craftsmen | - Utilities | - 5 | - 36.1 |
| Operatives | - Communication | - 6 | - 12.0 |
| Operatives | - Amusement and recreation | - 7 | - 35.0 |
| Labor | - Wholesale and retail trade | - 39 | - 27.3 |
| Labor | - Manufacturing | - 436 | -100.00 |

porting over-all net gains in employment, are not included in the tables as evidence of an "upward employment trend."

The fastest growing employment combinations for men are given in Summary Table 2-6. In analyzing these data from either the industrial or occupational side of the employment "mix" it becomes evident that significant growth trends exist that could not have been anticipated on the basis of the foregoing industrial and occupational employment analysis. For example, in the craftsmen, foremen and kindred occupations, the census reports substantial net gains for the 1940 to 1950 period but only token gains for the next decade. Nevertheless, in analyzing the distributive effects of em-

ployment trends among the various industries, Summary Table 2-6 makes it clear that craftsmen and foremen skills are in marked demand in the manufacturing, wholesale and retail trade, utility, communication, and professional service industries. The employment of craftsmen and foremen workers rose by almost 170 per cent in wholesale and retail trade, an industry which reported a relative decline of 2.70 per cent from 1950 to 1960. During the latter decade craftsmen working in this industry increased by 36 per cent or more than 4, 000 workers.

A second, but more obvious employment pattern emerges in Summary Table 2-6 from the industrial side of the employment combinations. Five out of the fifteen major growth combinations involved manufacturing. Here again, a sector appears which previously reported a downward employment trend, namely, managers, officials and proprietors occupations. This occupational category, at least with respect to manufacturing, advanced by 39 per cent from 1940 to 1950 and by 21 per cent from 1950 to 1960. The upward employment trend for managers in construction comes as somewhat of an unexpected surprise because both of these sectors are on the decline.

The most rapidly growing occupations among women workers, as previously mentioned, are the clerical and sales occupations. Summary Table 2-7 notes the pervasiveness of this growth. Ten of the fifteen fastest growing employment combinations involved clerical and sales. The most notable gain occurred in the wholesale and retail category in which the number of women clerical and sales workers advanced by more than 20, 000 from 1940 to 1960. In addition, about half that number found employment in the professional service and manufacturing industries.

Studying Summary Table 2-7 from the industrial side of the employment "mix, " it is apparent that rapid growth trends exist, at least with respect to some occupations, in every industrial category with the exception of personal services, utilities and entertainment.

Unfortunately, the downward employment shifts for women reported in Summary Table 2-7 do not detail the most significant current trends. Therefore, this table is supplemented by major changes which occurred during the fifties. The most notable net loss in female employment between 1950 and 1960 occurred among the following:

(1) laborers in agriculture by 5, 601 (-34.4 per cent);
(2) managers in wholesale and retail trade by 816 (-13.8 per cent);
(3) operatives in personal services by 506 (-11.3 per cent);
(4) laborers in manufacturing by 365 (-32.1 per cent);
(5) operatives in wholesale and retail trade by 325 (-7.5 per cent).

## 2. EMPLOYMENT PROJECTIONS TO 1970

Projected employment in major industries. The over-all increases and decreases in civilian employment in the future are difficult to forecast. Many industries will gain or lose ground in employment because of changes in the pattern of demand. The latter, demand, depends on such difficult items to measure as: consumer purchasing habits; investment decisions; government expenditures; advances in technology; and the locational determinants, when it comes to the demand applicable for a region. Nevertheless, it is often possible to approximate industrial employment changes in the near future based on current employment trends.

The extractive industries, particularly agriculture, are expected to continue to decline in the employment of males between 1960 and 1970 as is shown on Table 2-8. On an annual average basis employment declines in agriculture may be in excess of 4,500 men. (See Table 2-9) At the same time, in non-agricultural industries male employment declines are forecast for construction, transportation, wholesale and retail trade, business and repair services, personal

TABLE 2-8

EMPLOYMENT BY MAJOR INDUSTRIAL GROUPS
FOR MALES, IOWA: 1950, 1960, 1970

| Major Industrial Groups | 1950 | 1960 | Per cent Change 1950-1960 | 1970 |
|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 265,898 | 193,795 | -27.12 | 149,067 |
| Mining | 3,140 | 2,264 | -27.90 | 1,843 |
| Construction | 53,394 | 50,869 | - 4.73 | 49,123 |
| Manufacturing | 121,130 | 149,356 | 23.30 | 188,568 |
| Transportation | 45,720 | 36,901 | -19.29 | 31,511 |
| Communication | 3,392 | 5,207 | 53.51 | 7,414 |
| Utilities | 9,780 | 10,812 | 10.55 | 11,980 |
| Wholesale and retail trade | 126,424 | 123,010 | - 2.70 | 122,770 |
| Finance, insurance, and real estate | 16,103 | 19,405 | 20.51 | 23,887 |
| Business and repair services | 23,689 | 16,813 | -29.03 | 12,768 |
| Personal services | 14,239 | 12,015 | -15.62 | 10,461 |
| Amusement, recreation, and related services | 5,876 | 3,946 | -32.85 | 2,969 |
| Professional services | 34,466 | 48,072 | 39.48 | 68,711 |
| Government | 22,583 | 23,214 | 2.79 | 24,505 |

TABLE 2-9

EMPLOYMENT BY MAJOR INDUSTRIAL GROUPS
FOR WOMEN, IOWA: 1950, 1960, 1970

| Major Industrial Groups | 1950 | 1960 | Per cent Change 1950-1960 | 1970 |
|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 19,500 | 16,708 | -14.32 | 19,592 |
| Mining | 168 | 118 | -29.76 | 107 |
| Construction | 1,490 | 2,110 | 41.61 | 3,853 |
| Manufacturing | 30,813 | 40,304 | 30.80 | 53,727 |
| Transportation | 2,235 | 2,548 | 14.00 | 3,045 |
| Communication | 6,935 | 7,223 | 4.15 | 7,776 |
| Utilities | 1,364 | 1,684 | 23.46 | 2,158 |
| Wholesale and retail trade | 65,963 | 75,577 | 14.57 | 88,183 |
| Finance, insurance, and real estate | 11,545 | 17,154 | 48.58 | 26,450 |
| Business and repair services | 2,775 | 3,910 | 40.90 | 5,193 |
| Personal services | 30,136 | 36,874 | 22.36 | 47,099 |
| Amusement, recreation, and related services | 2,403 | 2,614 | 8.78 | 3,333 |
| Professional services | 53,147 | 81,580 | 53.50 | 137,947 |
| Government | 7,654 | 9,596 | 25.37 | 12,437 |

services, and entertainment industries. Mining is the only broad industrial sector in which an actual decline in the employment of women is expected between 1960 and 1970.

Among the nonagricultural industries, those furnishing services are expected to continue their upward trends in male employment through 1970. These industries include communications, utilities, finance, insurance, and real estate, government, and professional services. The greatest increase in service-related employment is expected to be in the category of "professional services" where more than 20,000 men are expected to secure jobs. The most rapid growth in terms of absolute increase is projected for manufacturing where an additional 39,212 men may find employment by 1970.

The number of women employed in the professional services is expected to increase to nearly 140,000 -- a projected increase of 70 per cent between 1960 and 1970. This represents an average annual gain of 5,600 women during the ten-year period. In addition to the professional service industry, all of the remaining service rendering sectors are expected to significantly increase their employment of women between now and 1970. Also, employment in trade, construction, and manufacturing are projected to make similar ad-

vances. Of these latter categories, the largest annual gains are anticipated in manufacturing and wholesale and retail trade where more than 1,300 and 1,200 women may find jobs respectively.

Projected employment in major occupations. Significant changes in occupational employment patterns are in prospect for Iowa because of differentials in growth trends among industries. From a general view, Tables 2-10 and 2-11 indicate that rapid growth of white-collar occupations through 1970 is to be expected for both males and females.

TABLE 2-10

EMPLOYMENT BY MAJOR OCCUPATIONAL GROUPS FOR MALES, IOWA: 1950, 1960, 1970

| Major Occupational Groups | 1950 | 1960 | Per cent Change 1950-1960 | 1970 |
|---|---|---|---|---|
| Professional, technical, and kindred workers | 40,317 | 53,435 | 35.02 | 79,623 |
| Managers, officials, and proprietors (incl. farm) | 270,645 | 222,284 | -17.87 | 192,421 |
| Clerical, sales, and kindred workers | 80,063 | 82,804 | 3.42 | 89,584 |
| Craftsmen, foremen, and kindred workers | 109,683 | 110,424 | .68 | 118,992 |
| Operatives and kindred workers | 103,445 | 115,183 | 11.35 | 133,748 |
| Service workers | 30,689 | 31,874 | 3.86 | 35,465 |
| Laborers (incl. farm) | 113,432 | 75,233 | -33.68 | 55,758 |

These general employment sectors include primarily professional, technical, clerical, sales, and service jobs.

Slower growth for both male and female blue-collar employment is projected. Among operatives, rapid growth is projected, whereas only moderate growth in the number of craftsmen and a decline in laborers are anticipated. Among the blue-collar occupations, rapid growth in the number of males and females employed as operatives is likely to continue. Only moderate expansion in the number of persons employed as craftsmen is expected during the 1960's. Also, the projection of past trends results in a probable net decline in the number of persons employed in two occupational categories: managers, officials and proprietors, and laborers.

TABLE 2-11

EMPLOYMENT BY MAJOR OCCUPATIONAL GROUPS
FOR WOMEN, IOWA: 1950, 1960, 1970

| Major Occupational Groups | 1950 | 1960 | Per cent Change 1950-1960 | 1970 |
|---|---|---|---|---|
| Professional, technical and kindred workers | 36,369 | 44,900 | 23.46 | 57,049 |
| Managers, officials, and proprietors (incl. farm) | 12,565 | 14,893 | 18.52 | 20,812 |
| Clerical, sales, and kindred workers | 87,596 | 114,194 | 30.36 | 158,085 |
| Craftsmen, foremen, and kindred workers | 3,221 | 3,222 | .03 | 3,674 |
| Operatives and kindred workers | 26,297 | 30,636 | 16.50 | 37,724 |
| Service workers | 52,170 | 76,727 | 47.07 | 125,027 |
| Laborers (incl. farm) | 18,762 | 12,141 | -35.29 | 8,439 |

Employment of professional, technical, and kindred workers, which have been by far the fastest growing occupational groups during the past decade for males, may increase by more than 49 per cent between 1960 and 1970. The increase in this sector is projected at 26,000 workers through 1970. Table 2-10 shows that growth in the operative occupations is projected to be somewhat slower than professionals, with an expected gain of more than 18,000 men during the sixties. In clerical, sales, craftsmen, foremen and service occupations, future gains are likely to be slower than in the above categories, with net declines anticipated in the managers, officials, proprietors and laborers sectors.

The number of women working in diverse service occupations is expected to increase by 62 per cent between 1960 and 1970. This growth represents an increase of almost 4,800 women per year during the sixties. A relatively rapid rise in employment of clerical, sales, and kindred workers through 1970 is anticipated to run a close second to the expansion of the number of female service workers. Table 2-11 sets out an estimated projection of 158,085 clerical and sales positions by 1970. This may be interpreted to mean that during the sixties more than 4,300 new jobs are likely to be added each year in

this occupation. From 1960 to 1970, projections of past changes indicate that the annual increase in the number of jobs in professional services will be 1,200 for managers, officials, and proprietors, the annual increase is likely to number 590; and for operatives, 700. No significant increase in the number of female craftsmen is expected during the sixties, while an actual decline in the "labor" category is projected for 1970.

Projected employment in major occupational-industry groups. It is well known that each industry has its own occupational pattern, which has been and will be subject to frequent change because of various economic developments. The changing occupational composition of the work force within each industry and the irregular growth of industries will, together, forcefully affect the demand for workers with specific occupational skills in the years ahead. Therefore, an assessment of future employment trends in major occupations within each industry is essential to any appraisal of future manpower needs.

Tables 2-12 and 2-13 reflect some small net advances in employment projected for both sexes in agricultural, forestry, fishery, and mining industries during the sixties. From 1960 to 1970, projections of past changes indicate that the annual increase in the number of agricultural jobs for men will be 30 in professional and technical employments together with 3 in clerical and sales activity. In the case of women in agriculture, the following number of jobs may be added per year: 522 managers, proprietors, and officials; 65 clerical and sales; and 37 operatives. In mining, the number of men employed as craftsmen and foremen is anticipated to expand by 124 during the sixties. Of the remaining occupations a few upward employment changes are projected; on balance, net losses are forecast for extractive industries in the remaining occupations.

In the goods-producing industries (construction and manufacturing), particularly manufacturing, significant employment growth is forecast in almost all of the job categories for both males and females. From 1960 to 1970, the net number of job openings for men in manufacturing is expected to increase by nearly 25 per cent. The most noteworthy gains for the decade include the following: 18,240 operatives; 10,211 professionals; 6,053 clerical and sales; and 1,783 managers. The category of laborer is the only occupation expected to decline in the sixties. Losses in this sector may run about 140 jobs annually.

Projected gains for women in manufacturing are anticipated to be most rapid in operatives with increases of about 664 per year,

TABLE 2-12

OCCUPATIONAL-INDUSTRY EMPLOYMENT MATRIX
FOR MALES, IOWA: 1950, 1960, 1970

| GROUPS | Year | Agriculture, Forestry, and Fisheries | Mining | Construction | Manufacturing | Transportation | Communication | Utilities |
|---|---|---|---|---|---|---|---|---|
| Professional, technical and kindred workers | 1950 | 1,074 | 24 | 1,249 | 5,478 | 451 | 172 | 756 |
| | 1960 | 1,303 | 31 | 2,088 | 10,378 | 381 | 935 | 836 |
| | 1970 | 1,608 | 41 | 3,031 | 20,589 | 328 | 1,390 | 933 |
| Managers, officials, and proprietors (incl. farm) | 1950 | 196,780 | 321 | 4,124 | 8,302 | 3,604 | 513 | 866 |
| | 1960 | 153,947 | 273 | 4,641 | 10,085 | 2,841 | 914 | 905 |
| | 1970 | 123,763 | 236 | 5,281 | 12,467 | 2,490 | 1,700 | 950 |
| Clerical, sales, and kindred workers | 1950 | 310 | 119 | 764 | 14,111 | 5,268 | 478 | 869 |
| | 1960 | 330 | 91 | 707 | 18,345 | 4,370 | 584 | 1,140 |
| | 1960 | 353 | 72 | 660 | 24,398 | 3,701 | 726 | 1,531 |
| Craftsmen, foremen, and kindred workers | 1950 | 298 | 505 | 33,537 | 28,853 | 9,249 | 1,975 | 3,968 |
| | 1960 | 218 | 600 | 31,115 | 33,334 | 6,189 | 2,579 | 4,493 |
| | 1970 | 165 | 724 | 29,093 | 39,027 | 4,346 | 3,446 | 5,147 |
| Operatives and kindred workers | 1950 | 995 | 2,138 | 3,718 | 47,270 | 19,781 | 85 | 1,767 |
| | 1960 | 908 | 1,237 | 3,925 | 60,276 | 19,050 | 37 | 1,921 |
| | 1970 | 837 | 755 | 4,165 | 78,516 | 18,416 | 18 | 2,105 |
| Service workers | 1950 | 155 | 17 | 103 | 2,657 | 542 | 91 | 122 |
| | 1960 | 138 | 16 | 91 | 2,894 | 209 | 103 | 116 |
| | 1970 | 124 | 15 | 81 | 3,178 | 93 | 118 | 111 |
| Laborers (incl. farm) | 1950 | 66,229 | 11 | 9,788 | 13,776 | 6,755 | 66 | 1,388 |
| | 1960 | 36,923 | -- | 8,087 | 11,871 | 3,647 | 31 | 1,287 |
| | 1970 | 22,217 | -- | 6,821 | 10,393 | 2,137 | 16 | 1,203 |

TABLE 2-12 Continued

| GROUPS | Year | Wholesale and Retail Trade | Finance, Insurance, Real Estate | Business and Repair Services | Personal Services | Amusement, Recreation, Related Serv. | Professional and Related Services | Government |
|---|---|---|---|---|---|---|---|---|
| Professional, technical and kindred workers | 1950 | 2,535 | 532 | 834 | 1,349 | 1,203 | 21,999 | 2,482 |
| | 1960 | 2,233 | 586 | 438 | 1,044 | 470 | 30,824 | 2,859 |
| | 1970 | 1,994 | 651 | 251 | 832 | 212 | 44,427 | 3,336 |
| Managers, officials, and proprietors (incl. farm) | 1950 | 39,628 | 4,194 | 3,110 | 1,659 | 1,684 | 1,350 | 3,462 |
| | 1960 | 32,775 | 5,395 | 1,701 | 1,502 | 1,092 | 1,946 | 4,027 |
| | 1970 | 27,672 | 7,094 | 1,007 | 1,374 | 746 | 2,891 | 4,750 |
| Clerical, sales, and kindred workers | 1950 | 36,209 | 8,971 | 1,944 | 667 | 361 | 1,273 | 8,375 |
| | 1960 | 34,115 | 11,118 | 1,227 | 521 | 218 | 1,671 | 8,249 |
| | 1970 | 32,338 | 14,044 | 820 | 418 | 140 | 2,245 | 8,138 |
| Craftsmen, foremen, and kindred workers | 1950 | 11,355 | 386 | 14,594 | 1,395 | 596 | 1,484 | 1,465 |
| | 1960 | 15,511 | 455 | 10,338 | 974 | 558 | 2,527 | 1,433 |
| | 1970 | 21,756 | 544 | 7,624 | 709 | 526 | 4,480 | 1,405 |
| Operatives and kindred workers | 1950 | 20,633 | 146 | 1,934 | 2,386 | 121 | 1,091 | 1,063 |
| | 1960 | 22,203 | 119 | 2,065 | 1,650 | 72 | 976 | 661 |
| | 1970 | 24,061 | 99 | 2,219 | 1,192 | 46 | 883 | 436 |
| Service workers | 1950 | 7,271 | 1,089 | 342 | 5,688 | 1,607 | 6,624 | 4,161 |
| | 1960 | 6,632 | 937 | 364 | 5,056 | 1,222 | 9,217 | 4,851 |
| | 1970 | 6,107 | 819 | 390 | 4,550 | 958 | 13,186 | 5,735 |
| Laborers (incl. farm) | 1950 | 8,493 | 740 | 890 | 1,062 | 277 | 586 | 1,348 |
| | 1960 | 8,658 | 683 | 625 | 1,206 | 306 | 592 | 955 |
| | 1970 | 8,842 | 636 | 457 | 1,386 | 341 | 599 | 705 |

TABLE 2-13

OCCUPATIONAL-INDUSTRY EMPLOYMENT MATRIX
FOR FEMALES, IOWA: 1950, 1960, 1970

| GROUPS | Year | Agriculture, Forestry, & Fisheries | Mining | Construction | Transportation | Manufacturing | Communication | Utilities |
|---|---|---|---|---|---|---|---|---|
| Professional, technical, and kindred workers | 1950 | 43 | 2 | 34 | 35 | 1,011 | 50 | 48 |
| | 1960 | 39 | - | 85 | 25 | 1,354 | 136 | 63 |
| | 1970 | 36 | - | 225 | 19 | 1,859 | 393 | 85 |
| Managers, officials and proprietors (incl. farm) | 1950 | 2,354 | 8 | 60 | 111 | 530 | 79 | 25 |
| | 1960 | 4,722 | 11 | 47 | 80 | 530 | 124 | 8 |
| | 1970 | 9,946 | 15 | 38 | 60 | 530 | 202 | 3 |
| Clerical, sales and kindred workers | 1950 | 460 | 119 | 824 | 1,475 | 10,675 | 6,646 | 1,221 |
| | 1960 | 792 | 100 | 1,573 | 1,735 | 14,906 | 6,751 | 1,512 |
| | 1970 | 1,421 | 86 | 3,146 | 2,071 | 21,404 | 6,868 | 1,908 |
| Craftsmen, foremen and kindred workers | 1950 | 23 | 20 | 442 | 23 | 1,395 | 79 | 24 |
| | 1960 | 12 | -- | 287 | 8 | 1,507 | 71 | -- |
| | 1970 | 7 | -- | 196 | 3 | 1,640 | 65 | -- |
| Operatives and kindred workers | 1950 | 235 | 14 | 29 | 346 | 15,525 | 20 | 16 |
| | 1960 | 424 | 3 | 4 | 504 | 20,170 | 16 | 7 |
| | 1970 | 799 | 1 | 1 | 757 | 26,808 | 13 | 3 |
| Service workers | 1950 | 103 | 3 | 16 | 100 | 376 | 49 | 19 |
| | 1960 | 40 | 4 | 58 | 90 | 584 | 90 | 50 |
| | 1970 | 18 | 5 | 225 | 82 | 225 | 173 | 140 |
| Laborers (incl. farm) | 1950 | 16,272 | 1 | 81 | 138 | 1,137 | 1 | 9 |
| | 1960 | 10,671 | - | 40 | 83 | 772 | 8 | 13 |
| | 1970 | 7,365 | - | 22 | 53 | 549 | 62 | 19 |

TABLE 2-13 Continued

| GROUPS | Year | Wholesale and retail trade | Finance, insurance and real estate | Business and repair services | Personal services | Amusement, Recreation, Related Serv. | Professional and related services | Government |
|---|---|---|---|---|---|---|---|---|
| Professional, technical, and kindred workers | 1950 | 511 | 147 | 125 | 506 | 428 | 32,625 | 730 |
| | 1960 | 458 | 180 | 180 | 373 | 334 | 40,778 | 844 |
| | 1970 | 415 | 224 | 267 | 285 | 268 | 51,984 | 989 |
| Managers, officials, and proprietors (incl. farm) | 1950 | 5,841 | 795 | 147 | 681 | 203 | 746 | 937 |
| | 1960 | 5,025 | 916 | 197 | 800 | 235 | 1,233 | 937 |
| | 1970 | 4,393 | 1,069 | 271 | 954 | 276 | 2,118 | 937 |
| Clerical, sales and kindred workers | 1950 | 36,623 | 9,833 | 2,081 | 1,470 | 1,001 | 8,820 | 5,618 |
| | 1960 | 42,786 | 15,150 | 2,951 | 1,761 | 846 | 15,857 | 7,343 |
| | 1970 | 50,706 | 24,160 | 3,848 | 2,145 | 728 | 29,771 | 9,823 |
| Craftsmen, foremen and kindred workers | 1950 | 664 | 30 | 147 | 176 | 31 | 91 | 14 |
| | 1960 | 879 | 7 | 158 | 94 | 12 | 171 | 4 |
| | 1970 | 1,192 | 2 | 171 | 55 | 5 | 336 | 2 |
| Operatives and kindred workers | 1950 | 4,353 | 61 | 190 | 4,465 | 55 | 828 | 69 |
| | 1960 | 4,028 | 55 | 275 | 3,959 | 13 | 1,112 | 47 |
| | 1970 | 3,757 | 50 | 410 | 3,555 | 4 | 1,532 | 34 |
| Service Workers | 1950 | 17,337 | 621 | 52 | 22,607 | 661 | 9,840 | 236 |
| | 1960 | 21,640 | 746 | 100 | 29,731 | 1,134 | 22,053 | 358 |
| | 1970 | 27,548 | 911 | 202 | 40,036 | 2,026 | 52,162 | 562 |
| Laborers (incl. farm) | 1950 | 509 | 25 | 24 | 178 | 16 | 128 | 30 |
| | 1960 | 285 | 29 | 24 | 107 | 20 | 72 | -- |
| | 1970 | 172 | 34 | 24 | 69 | 26 | 44 | -- |

clerical and sales increases of 650, and professional of 50. No change is expected in the number of female managers, while a total decline of about 260 laborers is projected for 1970.

In transportation, communication, and utility industries, employment growth "cells" are largely mixed among the various occupations, with only moderate net annual employment increases projected for both sexes. Employment projections to 1970 show that the number of men in every occupational group within transportation is expected to decline, while women employed as clerical and sales personnel may increase by 34 per year, and operatives by 25. The most rapid absolute gains for males in communications are expected in craftsmen and foremen occupations at a rate of 87 job openings annually; managers, officials and proprietors at an annual rate of 79, and professional and technical at a rate of 46. Women, on the other hand, are expected to make very small gains in most occupations within communications. The most rapid net gains are projected for the professional, clerical and sales occupations. As for the utility industry, the most noteworthy projections include males in the professional, technical, manager, official, proprietor, craftsmen and foremen occupations and females in clerical and sales jobs.

If past trends continue, only three occupations within the trade industries will experience employment growth for both sexes through 1970. The projected increases for males comprise about 6, 200 craftsmen and foremen, 1, 800 operatives, and 184 laborers. Over the same period, the net increase in the number of women working in clerical and sales jobs is expected to advance by more than 7, 900, and by more than 5, 900 and 300 in service and craftsmen occupations respectively. Among the remaining occupations employment declines are forecast for both sexes.

Tables 2-12 and 2-13 indicate that among those industries furnishing services, only finance, insurance, and real estate, professional services and government anticipate a significant advance in the number of new jobs available for both sexes. However, in business and repair services, particularly personal and entertainment services, males employed in practically every occupational group are expected to decline. In the case of females, a large number of occupational sectors among the above industries are expected to expand between 1960 and 1970. For example, the most noteworthy growth projected for women in the personal service industry is among service workers, where more than 10, 300 new jobs will be available for them by 1970. In the business and repair service industry a total net increase of 897 clerical and sales jobs is antici-

pated, and in entertainment some 892 women may secure new jobs as service workers.

In projecting past changes the greatest absolute gains in finance among male workers are expected in clerical and sales occupations (293 annually), and in manager, official, and proprietor occupations (117 annually). The fastest growing occupations for women in this industry have been, and apparently will continue to be, in clerical and sales. From 1960 to 1970, projections of past changes indicate that 1, 100 jobs will be added per year in this occupational sector.

In the professional services industry Tables 2-12 and 2-13 indicate substantial net advances in employment of both males and females throughout the sixties. The most rapid net gains per year for men are forecast for professional and technical (1, 360), service workers (397), and craftsmen and foremen (195). As for women, the fastest growing occupations within the professional service industry appear to be in service workers (3, 010 per year), clerical and sales (1, 390), and professional and technical (1, 120). On balance, both males and females can anticipate future employment opportunities to expand in practically every occupation in the professional services industry.

In the government services industry only moderate employment gains among the various occupations are expected by 1970 for both male and female workers. Job openings in the near future for men in government are likely to occur in professional, technical, managerial, official, and service occupations; at the same time women can expect employment growth in professional, technical, clerical, sales and service occupations.

## CHAPTER III

## SUMMARY

In this chapter the main points developed throughout this study will be brought together and the likely areas of potential employment growth for Iowa will be summarized.

During the past few decades structural changes in the economy of Iowa have been initiated largely by rapid growth in manufacturing and changes in agriculture. The forces emanating from these two basic changes have set in motion changes in the age composition of the population of the state; interstate and intrastate population movements; and changes in the industrial and occupational employment attachment of the Iowa labor force. All of these alterations relate and give rise to specific manpower changes that have been in process and that will probably continue to confront Iowans. A brief summary of the possible confrontations is sketched in the remainder of this paper.

The number of workers in agriculture is expected to be surpassed by the number working in manufacturing by 1970. Therefore, manufacturing will likely be the single most important industrial employer in Iowa by the end of the decade.

There is little doubt that continued changes in agriculture and non-farm industrial development in Iowa will have a large impact on the manpower resources in the state and the employment structure in the future. Therefore, before intelligent action can be taken in regard to these changes, it is essential that the potential employment areas in the state be designated to the extent that it is possible.

In summarizing the areas of likely employment growth for Iowa, the greatest opportunities appear to lie among professional and technical occupations. If past changes continue in the sixties, the largest growth within these occupations will be concentrated in the following industries: professional services, with an expected total employment growth of nearly 25, 000 by 1970; manufacturing (10, 700); construction (1, 700); and government (600). Among the remaining "white-collar" occupations (managers, officials, proprietors, clerical and sales), advances are expected in several industrial groups. Although, a total net decline in the number of managers, officials, and proprietors is forecast, primarily because of the expected reduction in the number of self-employed male farmers, growth is anticipated in specific industries. The largest total net advances by the end of this decade most likely will occur in manufacturing (2, 400), finance, insurance and real estate (1, 900), pro-

fessional services (1, 800), and communications (860).

If the population in Iowa continues moving to urban areas, and if the relatively rapid growth in industries that use a high proportion of clerical and sales workers continues, jobs requiring these skills will increase substantially. This is particularly the case for women workers. The largest total net increase in the number of clerical and sales workers throughout the sixties is expected for the professional services industry (14, 500). Other significant advances are anticipated in manufacturing (12, 700), finance, insurance, and real estate (12, 000), wholesale and retail trade (6, 100) and government (2, 400) industries.

Among the manual occupations (operatives, craftsmen, and foremen), slower growth is anticipated in most industries relative to the "white-collar" categories. Taken as a whole, however, the relative position of these occupations is enhanced by the 1970 projection of a total net gain of 24, 900 operatives in manufacturing. Wholesale and retail trade is a distant second with a projected total increase of 1, 600 operatives. The largest absolute gain for craftsmen and foremen is projected for the wholesale and retail trade industry (6, 600), while the expected number of craftsmen and foremen in manufacturing is 5, 800 and in the professional service industry it is 2, 000.

The rise in service worker employment can be attributed to population growth, urbanization, and higher living standards. If past changes continue, especially for women workers, service jobs will expand rapidly in the future. The fastest growth "cell" in the Iowa economy is service workers in the professional service industry. From 1960 to 1970, the total net employment gain for this combination is expected to reach 34, 000 workers. Service workers in the personal service industry may advance by almost 10, 000 workers, while rapid growth in wholesale and retail trade (5, 400) and government (1, 100) industries is expected.

Industrial requirements for labor skills (farm and non-farm) have been falling, and on this basis one can expect that this decline will continue into the future. This is caused primarily by the greater use of machinery in agriculture and in non-farm industries (e.g., construction and manufacturing).

A word of caution is reiterated in closing. The reader should not impute accuracy to the industrial and occupational projections. The assignment of specific magnitudes was primarily for expository purposes. Rather than designating the changes by specific values, one could have grouped the categories on the basis of criteria that identified the area as a declining, stable, increasing, or high growth

classification. The results that follow from the patterning of the data warrants no more than this. A look at the future is somewhat tenuous and uncertain as to economic phenomena and especially so when referring to sub-regions of an economy. This study has not attempted to assign certainty to uncertain things.

# APPENDIX A

## EMPLOYMENT BY OCCUPATION AND INDUSTRIAL GROUP MALE AND FEMALE, 1940-1960

## NUMBER OF PERSONS EMPLOYED IN EACH OCCUPATION BY MAJOR INDUSTRY GROUP FOR MALES, IOWA: 1940, 1950, 1960
## (Professional, Technical, and Kindred Workers)

| Major Industry Group | 1940 | Net Change 1940-1950 Number | 1940-1950 Per Cent | 1950-1960 Number | 1950-1960 Per Cent |
|---|---|---|---|---|---|
| Agriculture, Forestry, and Fisheries | 180 | 894 | 496.67 | 229 | 21.32 |
| Mining | 19 | 5 | 26.32 | 7 | 29.17 |
| Construction | 672 | 577 | 85.86 | 839 | 67.17 |
| Manufacturing | 2,273 | 3,205 | 144.00 | 4,900 | 89.45 |
| Transportation | 199 | 252 | 126.63 | - 70 | -15.52 |
| Communication | 354 | - 182 | - 51.41 | 763 | 443.60 |
| Utilities | 358 | 398 | 111.17 | 80 | 10.58 |
| Wholesale and retail trade | 1,912 | 623 | 32.58 | - 302 | -11.91 |
| Finance, Insurance, and real estate | 147 | 385 | 261.90 | 54 | 10.15 |
| Business and Repair Services | 154 | 680 | 441.56 | - 396 | -47.48 |
| Personal Services | 1,257 | 92 | 7.32 | - 305 | -22.61 |
| Amusement, recreation, and related services | 863 | 340 | 39.40 | - 733 | -60.93 |
| Professional and related services | 19,990 | 2,009 | 10.05 | 8,825 | 40.12 |
| Government | 1,468 | 1,014 | 69.07 | 377 | 15.19 |
| /Managers, Officials, and Proprietors (Incl. farm)/ | | | | | |
| Agriculture, forestry and fisheries | 204,728 | -7,948 | - 3.88 | -42,833 | -21.77 |
| Mining | 330 | - 9 | - 2.73 | - 48 | -14.95 |
| Construction | 1,758 | 2,366 | 134.58 | 517 | 12.54 |
| Manufacturing | 5,981 | 2,321 | 38.81 | 1,783 | 21.48 |
| Transportation | 2,933 | 671 | 22.88 | - 763 | -21.17 |
| Communication | 550 | - 37 | - 6.73 | 401 | 78.17 |
| Utilities | 719 | 143 | 20.45 | 39 | 4.50 |
| Wholesale and retail trade | 41,026 | -1,398 | - 3.41 | - 6,853 | -17.29 |
| Finance, insurance, and real estate | 3,676 | 518 | 14.09 | 1,201 | 28.64 |
| Business and repair services | 2,413 | 697 | 28.89 | - 1,409 | -45.31 |
| Personal Services | 1,350 | 309 | 22.89 | - 157 | - 9.46 |
| Amusement, recreation, and related services | 1,592 | 92 | 5.78 | - 592 | -35.15 |
| Professional and related services | 643 | 707 | 109.95 | 596 | 44.15 |
| Government | 4,069 | - 607 | - 14.92 | 565 | 16.32 |

Continued

(Clerical, Sales, and Kindred Workers)

| Major Industry Group | 1940 | Net Change 1940-1950 Number | 1940-1950 Per Cent | 1950-1960 Number | 1950-1960 Per Cent |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 213 | 97 | 45.54 | 20 | 6.45 |
| Mining | 97 | 22 | 22.68 | - 28 | -23.53 |
| Construction | 333 | 431 | 129.43 | - 57 | - 7.46 |
| Manufacturing | 12,236 | 1,875 | 15.32 | 4,234 | 30.00 |
| Transportation | 4,439 | 829 | 18.68 | - 898 | -17.05 |
| Communication | 718 | - 240 | - 33.43 | 106 | 22.18 |
| Utilities | 1,109 | - 240 | - 21.64 | 271 | 31.19 |
| Wholesale, and retail trade | 30,988 | 5,221 | 16.85 | - 2,094 | - 5.78 |
| Finance, insurance, and real estate | 8,748 | 223 | 2.55 | 2,147 | 23.93 |
| Business and repair services | 998 | 946 | 94.79 | - 717 | -36.88 |
| Personal services | 717 | - 50 | - 6.97 | - 146 | -21.89 |
| Amusement, recreation, and related services | 184 | 177 | 96.20 | - 143 | -39.61 |
| Professional and related services | 842 | 431 | 51.19 | 398 | 31.26 |
| Government | 6,451 | 1,924 | 29.82 | - 126 | - 1.50 |

(Craftsmen, Foremen, and Kindred Workers)

| | | | | | |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 173 | 125 | 72.25 | - 80 | -26.85 |
| Mining | 389 | 116 | 29.82 | 95 | 18.81 |
| Construction | 23,006 | 10,531 | 45.78 | - 2,422 | - 7.22 |
| Manufacturing | 20,452 | 8,401 | 41.08 | 4,481 | 15.53 |
| Transportation | 8,940 | 309 | 3.46 | - 3,060 | -33.08 |
| Communication | 199 | 1,776 | 892.46 | 604 | 30.58 |
| Utilities | 1,813 | 2,155 | 118.86 | 525 | 13.23 |
| Wholesale, and retail trade | 5,749 | 5,606 | 97.51 | 4,156 | 36.60 |
| Finance, insurance, and real estate | 235 | 151 | 64.26 | 69 | 17.88 |
| Business and repair services | 10,608 | 3,986 | 37.58 | - 4,256 | -29.16 |
| Personal services | 1,297 | 98 | 7.56 | - 421 | -30.18 |
| Amusement, recreation, and related services | 71 | 525 | 739.44 | - 38 | - 6.38 |
| Professional and related services | 646 | 838 | 129.72 | 1,043 | 70.28 |
| Government | 523 | 942 | 180.11 | - 32 | - 2.18 |

Continued

(Operatives and Kindred Workers)

| Major Industry Group | 1940 | Net Change 1940-1950 Number | 1940-1950 Per Cent | 1950-1960 Number | 1950-1960 Per Cent |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 1,064 | - 69 | - 6.48 | - 87 | - 8.74 |
| Mining | 5,434 | - 3,296 | - 60.66 | - 901 | -42.14 |
| Construction | 2,519 | 1,199 | 47.60 | 207 | 5.57 |
| Manufacturing | 25,792 | 21,478 | 83.27 | 13,006 | 27.51 |
| Transportation | 17,341 | 2,440 | 14.07 | - 731 | - 3.70 |
| Communication | 1,165 | - 1,080 | - 92.70 | - 48 | -56.47 |
| Utilities | 1,790 | - 23 | - 1.28 | 154 | 8.72 |
| Wholesale, and retail trade | 16,732 | 3,901 | 23.31 | 1,570 | 7.61 |
| Finance, insurance, and real estate | 92 | 54 | 58.70 | - 27 | -18.49 |
| Business and repair services | 1,230 | 704 | 57.24 | 131 | 6.77 |
| Personal services | 1,903 | 483 | 25.38 | - 736 | -30.85 |
| Amusement, recreation, and related services | 531 | - 410 | - 77.21 | - 49 | -40.50 |
| Professional and related services | 798 | 293 | 36.72 | - 115 | -10.54 |
| Government | 654 | 409 | 62.54 | - 402 | -37.82 |

(Service Workers)

| | | | | | |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 36 | 119 | 330.56 | - 17 | -10.97 |
| Mining | 27 | - 10 | - 37.04 | - 1 | - 5.88 |
| Construction | 59 | 44 | 74.58 | - 12 | -11.65 |
| Manufacturing | 1,342 | 1,315 | 97.99 | 237 | 8.92 |
| Transportation | 634 | - 92 | - 14.51 | - 333 | -61.44 |
| Communication | 53 | 38 | 71.70 | 12 | 13.19 |
| Utilities | 95 | 27 | 28.42 | - 6 | - 4.92 |
| Wholesale and retail trade | 4,900 | 2,371 | 48.39 | - 639 | - 8.79 |
| Finance, insurance, and real estate | 1,235 | - 146 | - 11.82 | - 152 | -13.96 |
| Business and repair services | 176 | 166 | 94.32 | 22 | 6.43 |
| Personal services | 6,727 | -1,039 | - 15.45 | - 632 | -11.11 |
| Amusement, recreation, and related services | 1,385 | 222 | 16.03 | - 385 | -23.96 |
| Professional and related services | 4,485 | 2,139 | 47.69 | 2,593 | 39.15 |
| Government | 4,672 | - 511 | - 10.94 | 690 | 16.58 |

Continued
/Labor, (incl. farm)/

| Major Industry Group | 1940 | Net Change 1940-1950 Number | 1940-1950 Per Cent | 1950-1960 Number | 1950-1960 Per Cent |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 97,218 | -30,989 | - 31.88 | -29,306 | - 44.25 |
| Mining | 13 | - 2 | - 15.38 | - 11 | 100.00 |
| Construction | 7,178 | 2,610 | 36.36 | - 1,701 | - 17.38 |
| Manufacturing | 13,857 | - 81 | - .58 | - 1,905 | - 13.83 |
| Transportation | 5,840 | 915 | 15.67 | - 3,108 | - 46.01 |
| Communication | 39 | 27 | 69.23 | - 35 | - 53.03 |
| Utilities | 1,078 | 310 | 28.76 | - 101 | - 7.28 |
| Wholesale and retail trade | 5,526 | 2,967 | 53.69 | 165 | 1.94 |
| Finance, insurance, and real estate | 635 | 105 | 16.54 | - 57 | - 7.70 |
| Business and repair services | 812 | 78 | 9.61 | - 265 | - 29.78 |
| Personal services | 464 | 598 | 128.88 | 144 | 13.56 |
| Amusement, recreation, and related services | 303 | - 26 | - 8.58 | 29 | 10.47 |
| Professional and related services | 318 | 268 | 84.28 | 6 | 1.02 |
| Government | 918 | 430 | 46.84 | - 393 | - 29.15 |

## NUMBER OF PERSONS EMPLOYED IN EACH OCCUPATION BY MAJOR INDUSTRY GROUP FOR FEMALES, IOWA: 1940, 1950, 1960
(Professional, Technical and Kindred Workers)

| Major Industry Group | 1940 | Net Change 1940-1950 Number | 1940-1950 Per Cent | 1950-1960 Number | 1950-1960 Per Cent |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 3 | 40 | 1,333.33 | - 4 | - 9.30 |
| Mining | - | 2 | 100.00 | - 2 | -100.00 |
| Construction | 1 | 33 | 3,300.00 | 51 | 150.00 |
| Manufacturing | 508 | 503 | 99.02 | 343 | 33.93 |
| Transportation | 5 | 30 | 600.00 | - 10 | - 28.57 |
| Communication | 42 | 8 | 19.05 | 86 | 172.00 |
| Utilities | 16 | 32 | 200.00 | 15 | 31.25 |
| Wholesale and retail trade | 186 | 325 | 174.73 | - 53 | - 10.37 |
| Finance, insurance, and real estate | 22 | 125 | 568.18 | 33 | 22.45 |
| Business and repair services | 35 | 90 | 257.14 | 55 | 44.00 |
| Personal services | 277 | 229 | 82.67 | - 133 | - 26.28 |
| Amusement, recreation, and related services | 254 | 174 | 68.50 | - 94 | - 21.96 |
| Professional and related services | 31,277 | 1,348 | 4.31 | 8,153 | 24.99 |
| Government | 491 | 239 | 48.68 | 114 | 15.62 |
| /Managers, Officials, and Proprietors (incl. farm)/ | | | | | |
| Agriculture, forestry, and fisheries | 3,038 | - 684 | - 22.51 | 2,368 | 100.59 |
| Mining | 2 | 6 | 300.00 | 3 | 37.50 |
| Construction | 13 | 47 | 361.54 | - 13 | - 21.67 |
| Manufacturing | 275 | 255 | 92.73 | 0 | 0.00 |
| Transportation | 47 | 64 | 136.17 | - 31 | - 27.93 |
| Communication | 67 | 12 | 17.91 | 45 | 56.96 |
| Utilities | 10 | 15 | 150.00 | - 17 | - 68.00 |
| Wholesale and retail trade | 4,577 | 1,264 | 27.62 | - 816 | - 13.97 |
| Finance, insurance, and real estate | 528 | 267 | 50.57 | 121 | 15.22 |
| Business and repair services | 82 | - 5,935 | - 97.58 | 50 | 34.01 |
| Personal services | 477 | 204 | 42.77 | 119 | 17.47 |
| Amusement, recreation and related services | 92 | 111 | 120.65 | 32 | 15.76 |
| Professional and related services | 297 | 449 | 151.18 | 487 | 65.28 |
| Government | 906 | 31 | 3.42 | 0 | 0.00 |

Continued

(Clerical, Sales, and Kindred Workers)

| Major Industry Group | 1940 | Net Changes 1940-1950 Number | 1940-1950 Per Cent | 1950-1960 Number | 1950-1960 Per Cent |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 348 | 112 | 32.18 | 332 | 72.17 |
| Mining | 22 | 97 | 440.19 | - 19 | -15.97 |
| Construction | 391 | 433 | 110.74 | 749 | 90.90 |
| Manufacturing | 5,348 | 5,327 | 99.61 | 4,231 | 39.63 |
| Transportation | 744 | 731 | 98.25 | 260 | 17.36 |
| Communication | 4,166 | 2,480 | 59.53 | 105 | 1.58 |
| Utilities | 775 | 446 | 57.55 | 291 | 23.83 |
| Wholesale and retail trade | 20,999 | 15,624 | 74.40 | 6,163 | 16.83 |
| Finance, insurance, and real estate | 5,944 | 3,889 | 65.43 | 5,317 | 54.07 |
| Business and repair services | 1,020 | 1,061 | 104.02 | 870 | 41.81 |
| Personal Services | 834 | 636 | 76.26 | 291 | 19.80 |
| Amusement, recreation, and related services | 507 | 494 | 97.44 | - 155 | -15.48 |
| Professional and related services | 5,142 | 3,678 | 71.53 | 7,037 | 79.78 |
| Government | 3,215 | 2,403 | 74.74 | 1,725 | 30.70 |

(Craftsmen, Foremen and Kindred Workers)

| | | | | | |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 2 | 21 | 1,050.00 | - 11 | -47.83 |
| Mining | - | 20 | 100.00 | - 20 | -100.00 |
| Construction | 180 | 262 | 145.56 | - 155 | -35.07 |
| Manufacturing | 534 | 861 | 161.24 | 112 | 8.03 |
| Transportation | 7 | 16 | 228.57 | - 15 | -65.22 |
| Communication | 9 | 70 | 777.78 | - 8 | -10.13 |
| Utilities | 5 | 19 | 380.00 | - 24 | -100.00 |
| Wholesale and retail trade | 294 | 370 | 125.85 | 215 | 32.38 |
| Finance, insurance, and real estate | 7 | 23 | 328.57 | - 23 | -76.67 |
| Business and repair services | 38 | 109 | 286.84 | 11 | 7.48 |
| Personal Services | 73 | 103 | 141.10 | - 82 | -46.59 |
| Amusement, recreation, and related services | 16 | 15 | 93.75 | - 19 | -61.29 |
| Professional and related services | 41 | 50 | 121.95 | 80 | 87.91 |
| Government | 5 | 9 | 180.00 | - 10 | -71.43 |

Continued

(Operatives and Kindred Workers)

| Major Industry Group | 1940 | Net Change 1940-1950 Number | 1940-1950 Per Cent | 1950-1960 Number | 1950-1960 Per Cent |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 119 | 116 | 97.48 | 189 | 80.43 |
| Mining | 6 | 8 | 133.33 | - 11 | -78.57 |
| Construction | 5 | 24 | 480.00 | - 25 | -86.21 |
| Manufacturing | 8,456 | 7,069 | 83.60 | 4,645 | 29.92 |
| Transportation | 95 | 251 | 264.21 | 158 | 45.66 |
| Communication | 22 | - 2 | - 9.09 | - 4 | -20.00 |
| Utilities | 7 | 9 | 128.57 | - 9 | -56.25 |
| Wholesale and retail trade | 1,767 | 2,586 | 146.35 | - 325 | - 7.47 |
| Finance, insurance, and real estate | 5 | 56 | 1,120.00 | - 6 | - 9.84 |
| Business and repair services | 87 | 103 | 118.39 | - 85 | -44.74 |
| Personal services | 3,381 | 1,084 | 32.06 | - 506 | -11.33 |
| Amusement, recreation, and related services | 20 | 35 | 175.00 | - 42 | -76.36 |
| Professional and related services | 408 | 420 | 102.94 | 284 | 34.30 |
| Government | 11 | 58 | 527.27 | - 22 | -31.88 |

(Service Workers)

| | | | | | |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 2 | 101 | 5,050.00 | - 63 | -61.17 |
| Mining | - | 3 | 100.00 | 1 | 33.33 |
| Construction | 5 | 11 | 220.00 | 42 | 262.50 |
| Manufacturing | 111 | 265 | 238.74 | 208 | 55.32 |
| Transportation | 51 | 49 | 96.08 | - 10 | -10.00 |
| Communication | 24 | 25 | 104.17 | 41 | 83.67 |
| Utilities | 9 | 10 | 111.11 | 31 | 163.16 |
| Wholesale and retail trade | 9,622 | 7,715 | 80.18 | 4,303 | 24.82 |
| Finance, insurance, and real estate | 487 | 134 | 27.52 | 125 | 20.13 |
| Business and repair services | 6 | 46 | 766.67 | 48 | 92.31 |
| Personal Services | 38,918 | -16,311 | - 41.91 | 7,124 | 31.51 |
| Amusement, recreation, and related services | 221 | 440 | 199.10 | 473 | 71.56 |
| Professional and related services | 3,489 | 6,351 | 182.03 | 12,213 | 124.12 |
| Government | 184 | 52 | 28.26 | 122 | 51.69 |

Continued
/Laborer, (incl. farm)/

| Major Industry Group | 1940 | Net Change 1940-1950 Number | 1940-1950 Per Cent | 1950-1960 Number | 1950-1960 Per Cent |
|---|---|---|---|---|---|
| Agriculture, forestry, and fisheries | 1,892 | 14,380 | 760.04 | -5,601 | -34.42 |
| Mining | - | 1 | 100.00 | - 1 | -100.00 |
| Construction | 17 | 64 | 376.47 | - 41 | -50.62 |
| Manufacturing | 1,208 | - 71 | - 5.88 | - 365 | -32.10 |
| Transportation | 20 | 118 | 590.00 | - 55 | -39.86 |
| Communication | 1 | 0 | 0.00 | 7 | 700.00 |
| Utilities | 2 | 7 | 350.00 | 4 | 44.44 |
| Wholesale and retail trade | 324 | 185 | 57.10 | - 224 | -44.01 |
| Finance, insurance, and real estate | 4 | 21 | 525.00 | 4 | 16.00 |
| Business and repair services | 2 | 22 | 1,100.00 | 0 | 0.00 |
| Personal Services | 110 | 68 | 61.82 | - 71 | -39.89 |
| Amusement, recreation, and related services | 4 | 12 | 300.00 | 4 | 25.00 |
| Professional and related services | 35 | 93 | 265.71 | - 56 | -43.75 |
| Government | 5 | 25 | 500.00 | - 30 | -100.00 |

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